

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Previously Presented) A layered composite, comprising the following layers:

- (I) a layer I composition comprising:
 - (a) from 0 to 80 parts by weight of at least one polyamide selected from the group consisting of PA6, PA66, PA6/66 and mixtures thereof;
 - (b) from 0 to 100 parts by weight of at least one polyamine-polyamide copolymer comprising the following monomer units:
 - (α) from 0.5 to 25% by weight, based on the weight of the polyamine-polyamide copolymer, of at least one polyamine having at least 4 nitrogen atoms and having a number-average molar mass M_n of at least 146 g/mol, and
 - (β) at least one polyamide-forming monomer selected from the group consisting of lactam, ω -aminocarboxylic acid, equimolar combination of diamine and dicarboxylic acid, and mixtures thereof; and
 - (c) from 0 to 80 parts by weight of at least one polyamide selected from the group consisting of PA11, PA12, PA612, PA1012, PA1212 and mixtures thereof;wherein, in said layer I, a total of the parts by weight of (a), (b) and (c) is 100;
 - wherein within an entirety of (a) and (b), at least 20 parts by weight of said entirety comprise monomer units selected from the group consisting of caprolactam, combination of hexamethylenediamine/adipic acid, and mixtures thereof; and
 - wherein within an entirety of (b) and (c), at least 20 parts by weight of said entirety comprise monomer units selected from the group consisting of ω -aminoundecanoic acid, lauro lactam, combination of hexamethylenediamine/1,12-dodecanedioic acid,

combination of 1,10-decanediamine/1,12-dodecanedioic acid,
combination of 1,12-dodecanediamine/1,12-dodecanedioic acid, and
mixtures thereof; and

- (II) a layer II composition comprising at least one ethylene-vinyl alcohol copolymer;

wherein

the composite comprises the following sequence of layers:

- (i) a layer comprising at least one member selected from the group consisting of PA11, PA12, PA612, PA1012, PA1212, and combinations thereof;
- (ii) layer I;
- (iii) layer II; and
- (iv) a layer comprising at least one member selected from the group consisting of PA6, PA66, PA6/66, and combinations thereof.

2. (Previously Presented) The composite as claimed in claim 1, wherein the layer I composition comprises at least one member selected from the group consisting of:

at least 0.5 part by weight of (a),
at least 0.5 part by weight of (b),
at least 0.5 part by weight of (c),
and combinations thereof.

3. (Previously Presented) The composite as claimed in claim 1, wherein the layer I composition comprises at least one member selected from the group consisting of:

at least 10 parts by weight of (a),
at least 2 parts by weight of (b),
at least 10 parts by weight of (c),
and combinations thereof.

4. (Previously Presented) The composite as claimed in claim 1, wherein the layer I composition comprises at least one member selected from the group consisting of:

at least 20 parts by weight of (a),
at least 5 parts by weight of (b),
at least 20 parts by weight of (c),
and combinations thereof.

5. (Previously Presented) The composite as claimed in claim 1, wherein the layer I composition comprises at least one member selected from the group consisting of:

- at least 30 parts by weight of (a),
- at least 10 parts by weight of (b),
- at least 30 parts by weight of (c),
- and combinations thereof.

6. (Previously Presented) The composite as claimed in claim 1, wherein the layer I composition comprises at least one member selected from the group consisting of:

- at most 70 parts by weight of (a),
- at most 80 parts by weight of (b), and
- at most 70 parts by weight of (c).

7. (Previously Presented) The composite as claimed in claim 1, wherein the layer I composition comprises at least one member selected from the group consisting of:

- at most 60 parts by weight of (a),
- at most 60 parts by weight of (b), and
- at most 60 parts by weight of (c).

8. (Original) The composite as claimed in claim 1, wherein the layer I composition comprises not more than 40 parts by weight of (b).

9. (Original) The composite as claimed in claim 1, wherein the polyamine-polyamide copolymer (b) comprises from 1 to 20% by weight of the polyamine (α).

10. (Original) The composite as claimed in claim 1, wherein the polyamine-polyamide copolymer (b) comprises from 1.5 to 16% by weight of the polyamine (α).

11. (Original) The composite as claimed in claim 1, wherein the polyamine (α) comprises at least 8 nitrogen atoms.

12. (Original) The composite as claimed in claim 1, wherein the polyamine (α) comprises at least 11 nitrogen atoms.

13. (Original) The composite as claimed in claim 1, wherein the polyamine (α) has a number-average molar mass M_n of at least 500 g/mol.

14. (Original) The composite as claimed in claim 1, wherein the polyamine (α) has a number-average molar mass M_n of at least 800 g/mol.

15. (Original) The composite as claimed in claim 1, wherein an amino group concentration in the polyamine-polyamide copolymer (b) is in the range from 100 to 2,500 mmol/kg.

16. (Original) The composite as claimed in claim 1, wherein the layer I composition comprises at least one block copolymer comprising (a) and (c) monomer units.

17-18. (Canceled)

19. (Original) The composite as claimed in claim 1, wherein the composite comprises two of the I layers.

20. (Original) The composite as claimed in claim 1, further comprising at least one reground layer.

21-22. (Canceled)

23. (Previously Presented) The composite as claimed in claim 1, comprising at least one outer layer comprising at least one member selected from the group consisting of PA11, PA12, PA612, PA1012, PA1212, and combinations thereof.

24. (Original) The composite as claimed in claim 1, comprising at least one electrically conductive layer.

25. (Original) The composite as claimed in claim 1, comprising at least one innermost layer and further comprising at least one electrically conductive layer adjacent to the innermost layer.

26. (Original) The composite as claimed in claim 1, wherein the polyamides in at least one of (a), (c) or both comprise not more than 50% by weight of additives.

27. (Original) The composite as claimed in claim 1, wherein the composite is in the form of a tube.

28. (Original) The composite as claimed in claim 1, wherein at least one region of the composite has a corrugated shape.

29. (Original) The composite as claimed in claim 1, wherein the composite is in the form of a hollow article.

30. (Original) The composite as claimed in claim 1, comprising at least one outermost layer, and further comprising an elastomer layer adjacent to the outermost layer.

31. (Previously Presented) A tubular article selected from the group consisting of fuel pipe, brake-fluid pipe, coolant pipe, hydraulic-fluid pipe, fuel-pump pipe, air-conditioner pipe, and a vapor line, said article comprising the composite as claimed in claim 1.

32. (Previously Presented) An article selected from the group consisting of a container, fuel container, filler pipe, and filler pipe for a tank, said article comprising the composite as claimed in claim 1.

33. (Original) A film, comprising the composite as claimed in claim 1.

34. (Withdrawn) A method for preparing the composite as claimed in claim 1, comprising:

performing at least one procedure selected from the group consisting of multicomponent injection molding, coextrusion, and coextrusion blow molding said procedure being performed with at least one member selected from the group consisting of the layers I, II, and a combination of layers I and II.

35-36. (Canceled)

37. (Previously Presented) A layered composite, comprising the following layers:

- (I) a layer I composition comprising:
 - (a) from 0 to 80 parts by weight of at least one polyamide selected from the group consisting of PA6, PA66, PA6/66 and mixtures thereof;
 - (b) from 0 to 100 parts by weight of at least one polyamine-polyamide copolymer comprising the following monomer units:
 - (α) from 0.5 to 25% by weight, based on the weight of the polyamine-polyamide copolymer, of at least one polyamine having at least 4 nitrogen atoms and having a number-average molar mass M_n of at least 146 g/mol, and
 - (β) at least one polyamide-forming monomer selected from the group consisting of lactam, ω -aminocarboxylic acid, equimolar combination of diamine and dicarboxylic acid, and mixtures thereof; and
 - (c) from 0 to 80 parts by weight of at least one polyamide selected from the group consisting of PA11, PA12, PA612, PA1012, PA1212 and mixtures thereof;wherein, in said layer I, a total of the parts by weight of (a), (b) and (c) is 100;
 - wherein within an entirety of (a) and (b), at least 20 parts by weight of said entirety comprise monomer units selected from the group consisting of caprolactam, combination of hexamethylenediamine/adipic acid, and mixtures thereof; and
 - wherein within an entirety of (b) and (c), at least 20 parts by weight of said entirety comprise monomer units selected from the group consisting of ω -aminoundecanoic acid, laurolactam, combination of hexamethylenediamine/1,12-dodecanedioic acid, combination of 1,10-decanediamine/1,12-dodecanedioic acid, combination of 1,12-dodecanediamine/1,12-dodecanedioic acid, and mixtures thereof; and

(II) a layer II composition comprising at least one ethylene-vinyl alcohol copolymer;

wherein the composite comprises a layer sequence I/II/I.

38. (Previously Presented) The composite as claimed in claim 37, wherein the layer I composition comprises at least one member selected from the group consisting of:

at least 0.5 part by weight of (a),
at least 0.5 part by weight of (b),
at least 0.5 part by weight of (c),
and combinations thereof.

39. (Previously Presented) The composite as claimed in claim 38, wherein the layer I composition comprises at least one member selected from the group consisting of:

at least 10 parts by weight of (a),
at least 2 parts by weight of (b),
at least 10 parts by weight of (c),
and combinations thereof.

40. (Previously Presented) The composite as claimed in claim 37, wherein the layer I composition comprises at least one member selected from the group consisting of:

at least 20 parts by weight of (a),
at least 5 parts by weight of (b),
at least 20 parts by weight of (c),
and combinations thereof.

41. (Previously Presented) The composite as claimed in claim 37, wherein the layer I composition comprises at least one member selected from the group consisting of:

at least 30 parts by weight of (a),
at least 10 parts by weight of (b),
at least 30 parts by weight of (c),
and combinations thereof.

42. (Previously Presented) The composite as claimed in claim 37, wherein the layer I composition comprises at least one member selected from the group consisting of:

at most 70 parts by weight of (a),
at most 80 parts by weight of (b), and
at most 70 parts by weight of (c).

43. (Previously Presented) The composite as claimed in claim 37, wherein the layer I composition comprises at least one member selected from the group consisting of:

at most 60 parts by weight of (a),
at most 60 parts by weight of (b), and
at most 60 parts by weight of (c).

44. (Previously Presented) The composite as claimed in claim 37, wherein the layer I composition comprises not more than 40 parts by weight of (b).

45. (Previously Presented) The composite as claimed in claim 37, wherein the polyamine-polyamide copolymer (b) comprises from 1 to 20% by weight of the polyamine (α).

46. (Previously Presented) The composite as claimed in claim 37, wherein the polyamine-polyamide copolymer (b) comprises from 1.5 to 16% by weight of the polyamine (α).

47. (Previously Presented) The composite as claimed in claim 37, wherein the polyamine (α) comprises at least 8 nitrogen atoms.

48. (Previously Presented) The composite as claimed in claim 37, wherein the polyamine (α) comprises at least 11 nitrogen atoms.

49. (Previously Presented) The composite as claimed in claim 37, wherein the polyamine (α) has a number-average molar mass M_n of at least 500 g/mol.

50. (Previously Presented) The composite as claimed in claim 37, wherein the polyamine (α) has a number-average molar mass M_n of at least 800 g/mol.

51. (Previously Presented) The composite as claimed in claim 37, wherein an amino group concentration in the polyamine-polyamide copolymer (b) is in the range from 100 to 2,500 mmol/kg.

52. (Previously Presented) The composite as claimed in claim 37, wherein the layer I composition comprises at least one block copolymer comprising (a) and (c) monomer units.

53. (Previously Presented) The composite as claimed in claim 37, further comprising at least one layer comprising at least one member selected from the group consisting of PA11, PA12, PA612, PA1012, PA1212, and combinations thereof.

54. (Previously Presented) The composite as claimed in claim 37, further comprising at least one layer comprising at least one member selected from the group consisting of PA6, PA66, PA6/66, and combinations thereof.

55. (Previously Presented) The composite as claimed in claim 37, wherein the composite comprises two of the I layers.

56. (Previously Presented) The composite as claimed in claim 37, further comprising at least one regrind layer.

57. (Previously Presented) The composite as claimed in claim 37, wherein the composite comprises the following sequence of layers:

(a) a layer comprising at least one member selected from the group consisting of PA11, PA12, PA612, PA1012, PA1212, and combinations thereof;

(b) layer I;

(c) layer II;

(d) layer I; and

(e) a layer comprising at least one member selected from the group consisting of PA11, PA12, PA612, PA1012, PA1212, and combinations thereof;

58. (Previously Presented) The composite as claimed in claim 37, comprising at least one outer layer comprising at least one member selected from the group consisting of PA11, PA12, PA612, PA1012, PA1212, and combinations thereof.

59. (Previously Presented) The composite as claimed in claim 37, comprising at least one electrically conductive layer.

60. (Previously Presented) The composite as claimed in claim 37, comprising at least one innermost layer and further comprising at least one electrically conductive layer adjacent to the innermost layer.

61. (Previously Presented) The composite as claimed in claim 37, wherein the polyamides in at least one of (a), (c) or both comprise not more than 50% by weight of additives.

62. (Previously Presented) The composite as claimed in claim 37, wherein the composite is in the form of a tube.

63. (Previously Presented) The composite as claimed in claim 37, wherein at least one region of the composite has a corrugated shape.

64. (Previously Presented) The composite as claimed in claim 37, wherein the composite is in the form of a hollow article.

65. (Previously Presented) The composite as claimed in claim 37, comprising at least one outermost layer, and further comprising an elastomer layer adjacent to the outermost layer.

66. (Previously Presented) A tubular article selected from the group consisting of fuel pipe, brake-fluid pipe, coolant pipe, hydraulic-fluid pipe, fuel-pump pipe, air-conditioner pipe, and a vapor line, said article comprising the composite as claimed in claim 37.

67. (Previously Presented) An article selected from the group consisting of a container, fuel container, filler pipe, and filler pipe for a tank, said article comprising the composite as claimed in claim 37.

68. (Previously Presented) A film, comprising the composite as claimed in claim 37.

69. (Previously Presented) A method for preparing the composite as claimed in claim 37, comprising:

performing at least one procedure selected from the group consisting of multicomponent injection molding, coextrusion, and coextrusion blow molding said procedure being performed with at least one member selected from the group consisting of the layers I, II, and a combination of layers I and II.